

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
Form PTO-1449 (Modified)
(Use several sheets if necessary)

1 of 6

COMPLETE IF KNOWN

Application Number	10/567,470
Confirmation Number	4986
Filing Date	November 30, 2006
First Named Inventor	Iversen et al.
Group Art Unit	1645
Examiner Name	To be Assigned
Attorney Docket No.	50450-8055.US00

**U.S. PATENT DOCUMENTS**

Examiner Name	Cite No.	U.S. Patent or Application		Name of Patentee or Inventor of Cited Document	Date of Publication or Filing Date of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		NUMBER	Kind Code (if known)			
	1.	US-2003/0166588	A1	Iversen et al.	09-04-2003	
	2.	US-2003/0171335	A1	Stein et al.	09-11-2003	
	3.	US-2003/0224353	A1	Stein et al.	12-04-2003	
	4.	US-2004/0072239	A1	Renaud et al.	04-15-2004	
	5.	US-2004/0259108	A1	Linnen et al.	12-23-2004	
	6.	US-2005/0176661	A1	Valliant et al.	08-11-2005	
	7.	US-2006/0063150	A1	Iversen et al.	03-23-2006	
	8.	US-2006/0149046	A1	Arar, Khalil	07-06-2006	
	9.	US-2006/0269911	A1	Iversen et al.	11-30-2006	
	10.	US-2007/0066556	A1	Stein et al.	03-22-2007	
	11.	US-2007/0129323	A1	Stein et al.	06-07-2007	
	12.	US-2007/0265214	A1	Stein et al.	11-15-2007	
	13.	US-5,142,047		Summerton et al.	08-25-1992	
	14.	US-5,495,006		Climie et al.	02-27-1996	
	15.	US-5,576,302		Cook et al.,	11-19-1996	
	16.	US-5,580,767		Cowsert et al.	12-3-1996	
	17.	US-5,698,695		Summerton et al.	12-16-1997	
	18.	US-5,702,891		Kolberg et al.	12-30-1997	
	19.	US-5,734,039		Calabretta et al.	03-31-1998	
	20.	US-5,738,985		Miles et al.	04-14-1998	
	21.	US-5,955,318		Simons et al.	09-21-1999	
	22.	US-5,989,904		Das et al.	11-23-1999	
	23.	US-6,174,868		Anderson et al.	01-16-2001	
	24.	US-6,214,555	B1	Leushner et al.	04-10-2001	
	25.	US-6,258,570	B1	Glustein et al.	07-10-2001	

EXAMINER

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		Office NUMBER	Kind Code (if known)			
	26.	US-6,306,993		Rothbard et al.	10-23-2001	
	27.	US-6,365,577		Iversen	04-02-2002	
	28.	US-6,669,951	B2	Rothbard et al.	12-30-2003	
	29.	US-6,881,825	B1	Robbins et al.	04-19-2005	
	30.	US-7,115,374		Linnen et al.	10-03-2006	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.	Foreign Patent or Application			Name of Patentee or Applicant of Cited Document	Date of Publication or Filing Date of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	NUMBER	Kind Code (if known)				
	31.	PCT	WO02/068637	A2	Ribozyme Pharmaceuticals, Inc.	09-06-2002		
	32.	PCT	WO03/033657	A2/A3	AVI Biopharma, Inc.	04-24-2003		
	33.	PCT	WO05/007805	A2/A3	AVI Biopharma, Inc.	01-27-2005		
	34.	PCT	WO05/013905	A2/A3	AVI Biopharma, Inc.	02-17-2005		

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JEA/

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	35.	Bonham et al., "An assessment of the antisense properties of RNase H-competent and steric-blocking oligomers", <i>Nucleic Acids Res.</i> , <u>23</u> (7):1197-203 (1995).	
	36.	Boudvillain et al., "Transplatin-modified oligo(2'-O-methyl ribonucleotide)s: a new tool for selective modulation of gene expression", <i>Biochemistry</i> <u>36</u> (10):2925-31 (1997).	
	37.	Branch, Andrea D., "A good antisense molecule is hard to find", <i>Trends in Biochem. Sci.</i> , <u>23</u> :45-50 (1998).	
	38.	Brasey et al., "The leader of human immunodeficiency virus type 1 genomic RNA harbors an internal ribosome entry segment that is active during the G2/M phase of the cell cycle", <i>Journal of Virology</i> , <u>77</u> (7):3939-3949 (2003).	
	39.	Clarke et al., "Organization and expression of calicivirus genes", <i>J. Infect. Diseases</i> , <u>181</u> :S309-S316 (2000).	
	40.	Corey et al., "Morpholino Antisense Oligonucleotides: Tools for Investigating Vertebrate Development", <i>Genome Biology</i> , <u>2</u> (5):1015.1-1015.3 (2001)	
	41.	Cross et al., "Solution structure of an RNA x DNA hybrid duplex containing a 3'-thioformacetal linker and an RNA A-tract." <i>Biochemistry</i> , <u>36</u> (14):4096-107 (1997).	
	42.	Dagle et al., "Targeted elimination of zygotic messages in <i>Xenopus laevis</i> embryos by modified oligonucleotides possessing terminal cationic linkages", <i>Nucleic Acids Res.</i> , <u>28</u> (10):2153-7 (2000).	
	43.	Deas, T.S., et al., "Inhibition of flavivirus infections by antisense oligomers specifically suppressing viral translation and RNA replication", <i>Journal of Virology</i> , <u>79</u> (8):4599-4609, (2005).	
	44.	Ding, D., et al., "An oligodeoxyribonucleotide N3'--> P5' phosphoramidate duplex forms an A-type helix in solution", <i>Nucleic Acids Res.</i> , <u>24</u> (2):354-60 (1996).	
	45.	Egholm et al., "PNA hybridizes to complementary oligonucleotides obeying the Watson-Crick hydrogen-bonding rules." <i>Nature</i> , <u>365</u> (6446):566-8 (1993).	
	46.	Felgner et al., "Lipofection: a highly efficient, lipid-mediated DNA-transfection procedure", <i>PROC. NATL. ACAD. SCI. USA</i> , <u>84</u> (21):7413-7 (1987).	
	47.	Fischer, P.M., "Cellular uptake mechanisms and potential therapeutic utility of peptidic cell delivery vectors: progress 2001-2006" Published online 2006 in Wiley Interscience, www.interscience.wiley.com pages 1-41 (2006).	
	48.	Freier, S.M., in <i>Antisense Drug Technology: Principles, Strategies, and Applications</i> , Chapter 5, pp. 107-118 (2001).	

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	49.	Gee et al., "Assessment of high-affinity hybridization, RNase H cleavage, and covalent linkage in translation arrest by antisense oligonucleotides", <i>Antisense Nucleic Acid Drug Dev.</i> , 8(2):103-11 (1998).	
	50.	Genbank Accession No. AF304460, Human coronavirus 229E, complete genome (July 2001).	
	51.	Green et al., "Antisense oligonucleotides: an evolving technology for the modulation of gene expression in human disease", <i>J. Am. Coll. Surg.</i> , 191:93-105 (2000).	
	52.	Hanacek et al., "Antisense oligonucleotide inhibition of hepatitis C virus gene expression in transformed hepatocytes", <i>Journal of Virology</i> , 70:5203-5212 (1996).	
	53.	Holland et al., <i>Emerging Viruses</i> , Edited by Steven S. Morse, Oxford University Press, New York, Chapter 19, Replication Error, Quasispecies, Populations and Extreme Evolution Rates of RNA Viruses pages 203-218 (1993).	
	54.	Jaeger, J.A. et al., "Improved predictions of secondary structures for RNA", <i>Proc. Natl. Acad. Sci. USA</i> , 86:7706-7710 (1989).	
	55.	Johannes et al., "Identification of eukaryotic mRNAs that are translated at reduced cap binding complex eIF4F concentrations using a cDNA microarray", <i>Proc. Natl. Acad. Sci. USA</i> , 96(23):13118-13123 (1999).	
	56.	Jubin, R., et al., "Hepatitis C virus internal ribosome entry site (IRES) stem loop IIId contains a phylogenetically conserved GGG triplet essential for translation and IRES folding", <i>Journal of Virology</i> , 74(22):10430-10437 (2000).	
	57.	Liu et al., "Structural and functional analysis of the 5' untranslated region of coxsackievirus B3 RNA: In vivo translational and infectivity studies of full-length mutants", <i>Virology</i> , 265:206-217 (1999).	
	58.	Lopez De Quinto S. et al., "Involvement of the aphthovirus RNA region located between the two functional AUGs in start codon selection", <i>Virology</i> , 255(2):324-336 (1999).	
	59.	Markoff, L., "5'- and 3'-noncoding regions in flavivirus RNA", <i>Adv. Virus Res.</i> , 59:177-228 (2003).	
	60.	McCaffrey et al., "A potent and specific morpholino antisense inhibitor of hepatitis C translation in mice", <i>Hepatology</i> , 38(2):503-508 (2003).	
	61.	Moulton et al., Abstracts of Papers American Chemical Society National Meeting 226 (1-2): Biol 75 (Sept. 7-11, 2003).	
	62.	National Center for Biotechnology Information Report No. AF029248 from NCBI Genome Database (2000).	

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	63.	National Center for Biotechnology Information Report No. NC_002645 from NCBI Genome Database (2001).	
	64.	National Center for Biotechnology Information Report No. AY274119 from NCBI Genome Database (2003).	
	65.	Neuman et al. "Antisense morpholino-oligomers directed against the 5' end of the genome inhibit coronavirus proliferation and growth", <i>Journal of Virology</i> , 78(11):5891-5899 (2004).	
	66.	Orr et al., <i>Current Opinion in Molecular Therapeutics</i> , <i>Current Drugs</i> , 2(3):325-331 (2000).	
	67.	Partridge et al., "A simple method for delivering morpholino antisense oligos into the cytoplasm of cells", <i>Antisense Nucleic Acid Drug Dev.</i> , 6(3):169-75 (1996).	
	68.	Raviprakash, K., et al., "Inhibition of dengue virus by novel, modified antisense oligonucleotides", <i>Journal of Virology</i> , 69(1):69-74, (1995).	
	69.	Rothbard et al., "Arginine-rich molecular transporters for drug delivery: role of backbone spacing in cellular uptake", <i>J. Med. Chem.</i> , 45:3612-3618 (2002).	
	70.	Sankar e al., "Antisense oligonucleotide inhibition of encephalomyocarditis virus RNA translation", <i>European Journal of Biochemistry</i> , 184(1):39-45 (1989).	
	71.	Shengqi et al., "Synthesis of Antisense Phosphothioate Oligodeoxynucleotides of Dengue Fever Virus and Their Anti-Viral Activity", <i>Progress in Biochemistry and Biophysics</i> , 24:64-68 (English Translation) (1997). ✓	
	72.	Siprashvili et al., "Gene transfer via reversible plasmid condensation with cysteine-flanked, internally spaced arginine-rich peptides", <i>Human Gene Therapy</i> , 14:1225-1233 (2003)	
	73.	Smith et al., "Antisense treatment of caliciviridae: an emerging disease agent of animals and humans", <i>Current Opinion Molecular Therapeutics</i> , 4(2):177-184 (2002).	
	74.	Smith, R.M. and Wu, G.Y., "Secondary structure and hybridization accessibility of the hepatitis C virus negative strand RNA 5'-terminus", <i>Journal of Viral Hepatitis</i> , 11:115-123 (2004).	
	75.	Stein et al., "A specificity comparison of four antisense types: morpholino, 2'-O-methyl RNA, DNA, and phosphorothioate DNA", <i>Antisense & Nucleic Acid Drug Development</i> , 7(3):151-7 (1997).	

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	76.	Stein et al., "Inhibition of Vesivirus infections in mammalian tissue culture with antisense morpholino oligomers", <i>Antisense & Nucleic Acid Drug Development</i> , 11(5):317-325 (2001).	
	77.	Thiel et al., "Infectious RNA transcribed in vitro from a cDNA copy of the human coronavirus genome cloned in vaccinia virus", <i>Journal of General Virology</i> , 82:1273-1281 (2001)	
	78.	Toulme et al., Targeting RNA structures by antisense oligonucleotides." <i>Biochimie</i> , 78(7): 663-73 (1996).	
	79.	Wages et al., "Affinity purification of RNA: sequence-specific capture by nonionic morpholino probes", <i>Biotechniques</i> , 23:1116-1121 (1997).	
	80.	Wang et al., "Specific inhibition of coxsackievirus B3 translation and replication by phosphorothioate antisense oligodeoxynucleotides", <i>Antimicrobial Agents Chemotherapy</i> , 45(4):1043-1052 (2001).	
	81.	Wei et al., "Human immunodeficiency virus type-1 reverse transcription can be inhibited in vitro by oligonucleotides that target both natural and synthetic tRNA primers", <i>Nucleic Acids Res.</i> , 28:3065-3074 (2000).	
	82.	Wilson et al., "Naturally occurring dicistronic cricket paralysis virus RNA is regulated by two internal ribosome entry sites", <i>Mol. Cell. Biol.</i> , 20(14):4990-4999 (2000).	
	83.	Wu et al., "Specific inhibition of hepatitis B viral gene expression in vitro by targeted antisense oligonucleotides", <i>J. Biol. Chem.</i> , 267:12436-12439 (1992).	
	84.	Yuan et al., "A phosphorothioate antisense oligodeoxynucleotide specifically inhibits coxsackievirus B3 replication in cardiomyocytes and mouse hearts", <i>Laboratory Investigation</i> , 84:703-714 (2004).	
	85.	Zhang et al., "Antisense oligonucleotide inhibition of hepatitis C virus (HCV) gene expression in livers of mice infected with an HCV-vaccinia virus recombinant", <i>Antimicrobial Agents Chemotherapy</i> , 43(2):347-353 (1999).	
	86.	Zuker, M., "Mfold web server for nucleic acid folding and hybridization prediction", <i>Nucleic Acids Res.</i> , 31(13):3406-15 (2003).	

EXAMINER	/Jon Eric Angell/	DATE CONSIDERED	05/06/2010
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